**Different vasoactive effect of adherent adipose tissue during hypoxia in mice aorta and mesenteric arteries**

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Recent studies propose a paracrine role for perivascular adipose tissue in the regulation of vascular tone. The influence of hypoxia on the effect of brown and white adipose tissue was investigated using isometric tension recording of isolated mice aorta and mesenteric arteries with or without adherent adipose tissue. Hypoxia (bubbling with 95% $N_2$, 5% $CO_2$) relaxed precontracted aorta with brown adipose tissue, while a biphasic response was seen in precontracted mesenteric arteries with white adipose tissue in the presence of indomethacin (10 µM) and nitro-L-arginine (0.1 mM). Only a minimal vasorelaxing effect was observed in both arteries without adipose tissue. Glibenclamide (30 µM) significantly diminished the hypoxic response in aorta, while apamin (1 µM) combined with charybdotoxin (0.1 µM) significantly reduced the hypoxic response in mesenteric arteries. 8-(p-sulfophenyl)theophylline (0.1 mM) did not influence the hypoxic response in both arteries. Removal of the endothelium significantly reduced the hypoxic relaxation in mesenteric arteries, but not in aorta.

From these results we conclude that in mice aorta hypoxia induces vasorelaxation in the presence of brown adipose tissue. This relaxation is at least in part mediated by opening $K_{ATP}$ channels and independent of the endothelium and adenosine receptors, suggesting the involvement of the "adipocyte-derived relaxing factor" (ADRF). In mice mesenteric arteries, hypoxia induces a biphasic response in the presence of white adipose tissue, suggesting the involvement of (a) vasoconstrictor(s) and dilator(s). The vasodilating response is endothelium-dependent and in part mediated by opening $K_{Ca}$ channels, suggesting the involvement of (an) endothelium-dependent relaxing factor(s).